AMENDMENTS TO THE CLAIMS

1. – 8. (Cancelled.)

9. (Currently Amended) A radio communication system comprising:

a radio transmitter including encoding means for encoding a digital signal to be transmitted ~~using a code that does not contain any DC component~~, and a transmission antenna which transmits the signal encoded by said encoding means; and

a radio receiver including a reception antenna which receives the transmitted signal, and decoding means for performing decoding corresponding to encoding for the signal received by said reception antenna and restoring the digital signal, wherein communication is performed without using any carrier;

wherein said encoding means comprises spreading means for performing a spread spectrum process by multiplying the digital signal to be transmitted by a spreading code ~~that does not contain any DC component~~, and signal generation means for generating an impulse signal in response to rise and fall of a signal spread by said spreading means and outputting the impulse signal to said transmission antenna, and;

wherein said decoding means comprises despreading means for performing despreading for the signal received by said reception antenna by using a spreading code ~~that does not contain any DC component and corresponds~~ corresponding to a differentiated spread signal, and peak detection means for detecting a peak of the signal despread by said despreading means and restoring the digital signal.

10. (Previously Presented) A radio communication system according to claim 9, wherein ΔS is the differentiated spread signal, C is a spreading code corresponding to the spread signal ΔS, P is a correlation value between the spread signal ΔS and the spreading code C, and M is a code length of the spreading code C,

$$P \approx \sum_{k=1}^{M} \left(\Delta S_k \cdot \sum_{r=k}^{M} C_r \right)$$

is established.

11. – 14. (Cancelled.)

15. (Previously Presented) A radio communication system according to claim 9, in that said signal generation means outputs only an impulse signal in an nth (n is an integer not less than 2) harmonic band at a spread chip rate.

16. – 29. (Cancelled.)

30. (Currently Amended) A radio receiver which receives a signal from a radio transmitter that encodes a digital signal to be transmitted ~~using a code that does not contain any DC component~~ and transmits the digital signal to be transmitted and transmits the digital signal without using any carrier, comprising:

a reception antenna which receives the transmitted signal; and

decoding means for performing decoding corresponding to encoding for the signal received by said reception antenna and restoring the digital signal;

wherein said radio receiver receives a signal from the radio transmitter which generates an impulse signal in response to rise and fall of a spread signal obtained by performing a spread spectrum process for the digital signal to be transmitted and transmits the impulse signal without using any carrier, and said decoding means comprises despreading means for performing despreading for the signal received by said reception antenna by using a spreading code ~~that does not contain any DC component and corresponds~~ corresponding to a differentiated spread signal, and peak detection means for detecting a peak of the signal despread by said despreading means and restoring the digital signal.

31. (Previously Presented) A radio receiver according to claim 30, wherein ΔS is the differentiated spread signal, C is a spreading code corresponding to the spread signal ΔS, P is a correlation value between the spread signal ΔS and the spreading code C, and M is a code length of the spreading code C, where

$$P \approx \sum_{k=1}^{M} \left(\Delta S_k \cdot \sum_{r=k}^{M} C_r \right)$$

is established.

32. – 39. (Cancelled)

40. (Currently Amended) A radio communication method, comprising:

an encoding step of encoding a digital signal to be transmitted;

a transmission step of transmitting the signal encoded in the encoding;

a receiving step of receiving the transmitted signal; and

a decoding step of decoding corresponding to encoding for the signal received in the reception step and restoring the digital signal, wherein communication is performed without using any carrier;

wherein the encoding step comprises a spreading step of performing a spread spectrum process by multiplying the digital signal to be transmitted by a spreading code ~~that does not contain any DC component~~, and a signal generation step of generating an impulse signal in response to rise and fall of a signal spread in the spreading step, and the decoding step comprises a despreading step of performing despreading for the signal received in the reception step by using a spreading code ~~that does not contain any DC component and corresponds~~ corresponding to a differentiated spread signal, and a peak detection step of detecting a peak of the signal despread in the despreading step and restoring the digital signal.

41. (Previously Presented) A radio communication method according to claim 40, wherein ΔS is the differentiated spread signal, C is a spreading code corresponding to the spread signal ΔS, P is a correlation value between the spread signal ΔS and the spreading code C, and M is a code length of the spreading code C, where

$$P \approx \sum_{k=1}^{M}\left(\Delta S_k \cdot \sum_{r=k}^{M} C_r\right)$$

is established.

42. – 45. (Cancelled.)

46. (Previously Presented) A radio communication method according to claim 40, wherein during the signal generation step, only an impulse signal in an nth (n is an integer not less than 2) harmonic band at a spread chip rate is output.

47. – 62. (Cancelled.)